Seasonal Climate Watch

July to November 2023

Date issued: June 30, 2023

1. Overview

The El Niño-Southern Oscillation (ENSO) is currently transitioning into warm El Niño-like conditions and is moving into an El Niño state which according to the latest predictions is expected to persist through most of the summer months. It is still too early to indicate whether the this El Niño event will persist through the whole of the summer season, and therefore the close monitoring of ENSO is advised in the coming months. ENSO's impact is still limited for the current forecast period until the summer season starts which will likely be impacted by a moderate to strong El Niño state if early predictions are correct.

The multi-model rainfall forecast indicates above-normal rainfall for most of the country during winter (Jul-Aug-Sep) through to early-spring (Aug-Sep-Oct) with below-normal rainfall predicted over parts of the country in the west and the east during mid-Spring. This is still only relevant for the south-western parts of the country during winter but also relevant for the eastern coastal areas during spring.

Minimum and maximum temperatures are expected to be mostly above-normal countrywide for the forecast period.

The South African Weather Service (SAWS) will continue to monitor the weather and climate conditions and provide updates on any future assessments that may provide more clarity on the current expectations for the coming season.

2. South African Weather Service Prediction System

2.1. Ocean-Atmosphere Global Climate Model

SAWS is currently recognised by the World Meteorological Organization (WMO) as a Global Producing Centre (GPC) for Long-Range Forecasts (LRF). This is owing to its local numerical modelling efforts, which involve coupling of both the atmosphere and ocean components to form a fully interactive coupled modelling system, named the SAWS Coupled Model (SCM), the first of its kind in both South Africa and the region. Below are the first season (July-August-September) predictions for rainfall (Figure 1) and average temperature (Figure 2).

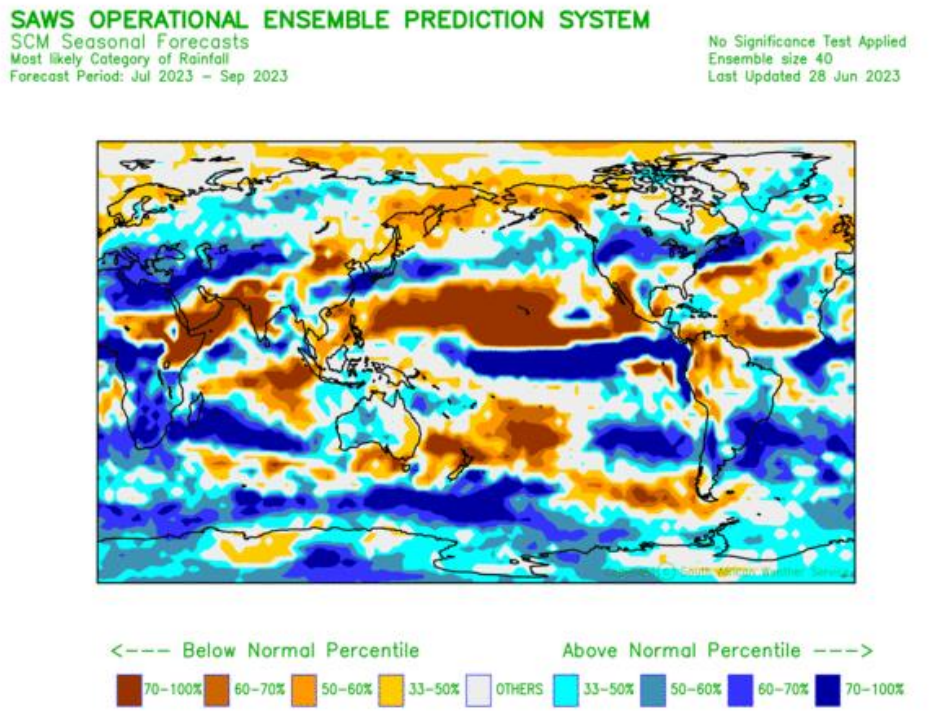

Figure 1: July-August-September, JAS (2023) global prediction for total rainfall probabilities

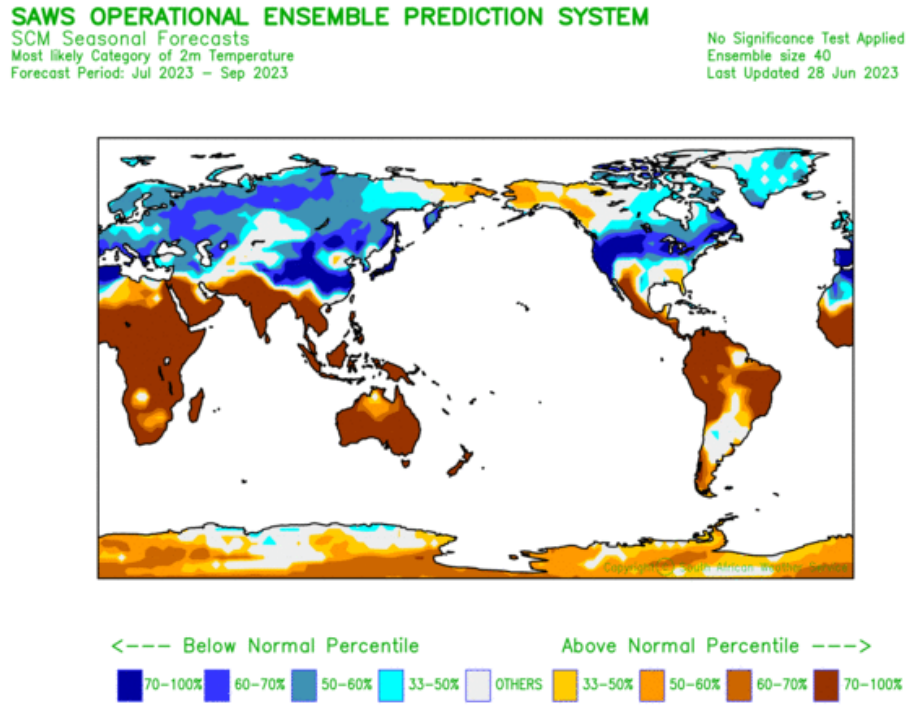

Figure 2: July-Aug-September, JAS (2023) global prediction for average temperature probabilities

2.2. Seasonal Forecasts for South Africa from the SAWS seasonal prediction system

The above-mentioned global forecasting systems' forecasts are combined with the GFDL-SPEAR and COLA-RSMAS-CCSM4 systems (part of the North American Multi-Model Ensemble System) for South Africa, as issued with the June 2023 initial conditions, and are presented below:

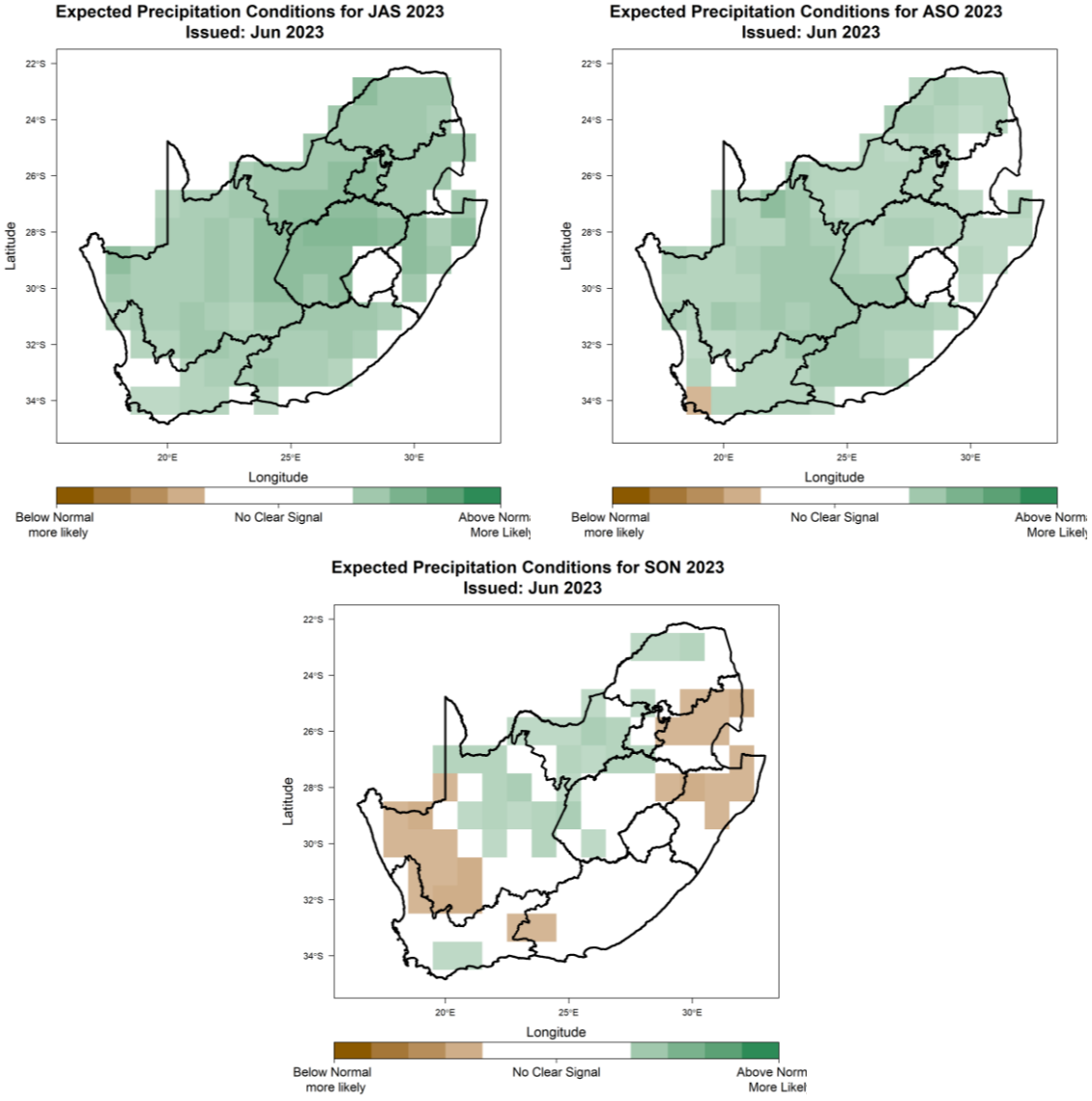

Figure 3: July-August-September 2023 (JAS; left), August-September-October 2023 (ASO; right), September-October-November 2023 (SON; bottom) seasonal precipitation prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

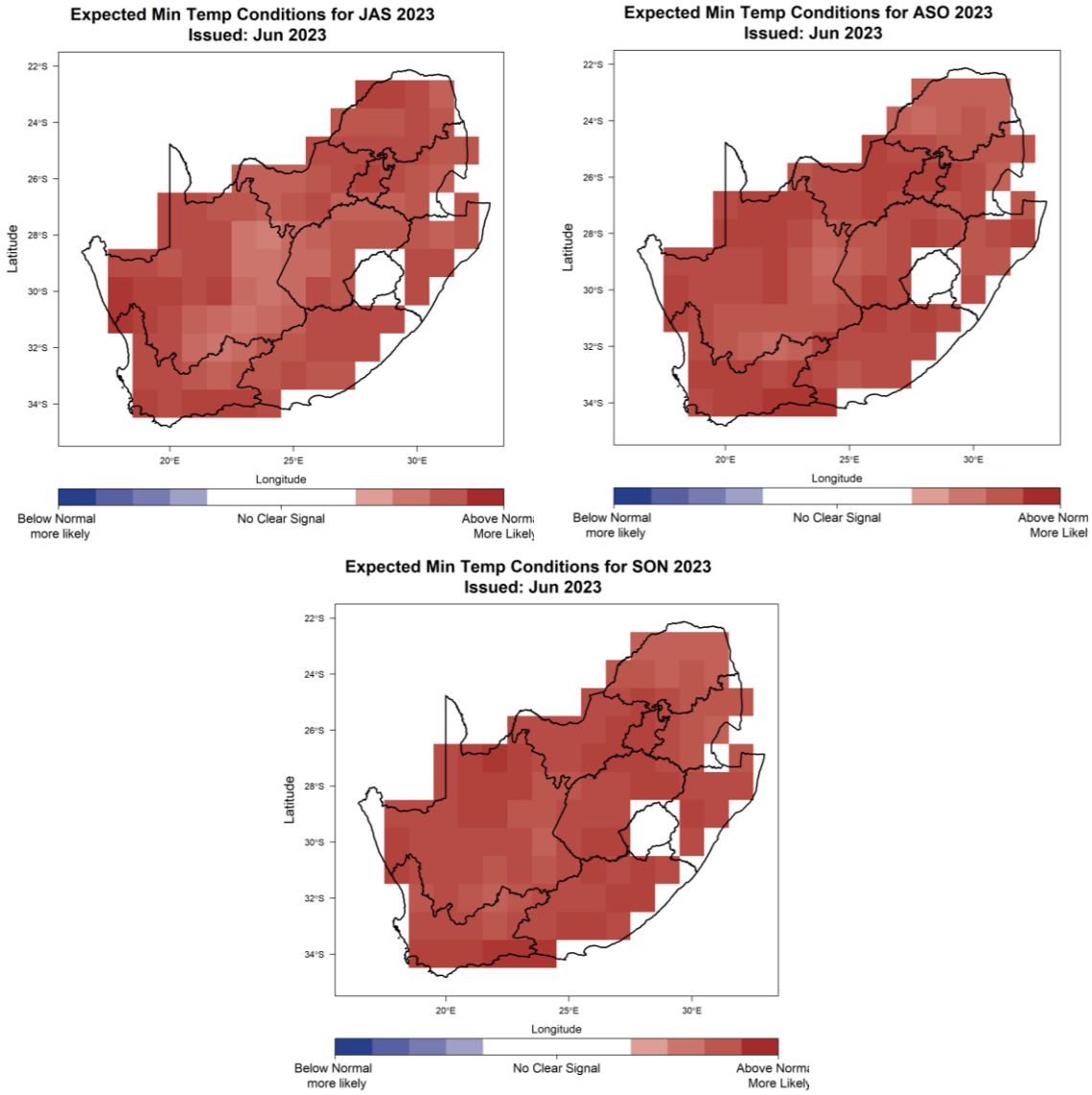

Figure 4: July-August-September 2023 (JAS; left), August-September-October 2023 (ASO; right), September-October-November 2023 (SON; bottom) seasonal minimum temperature prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

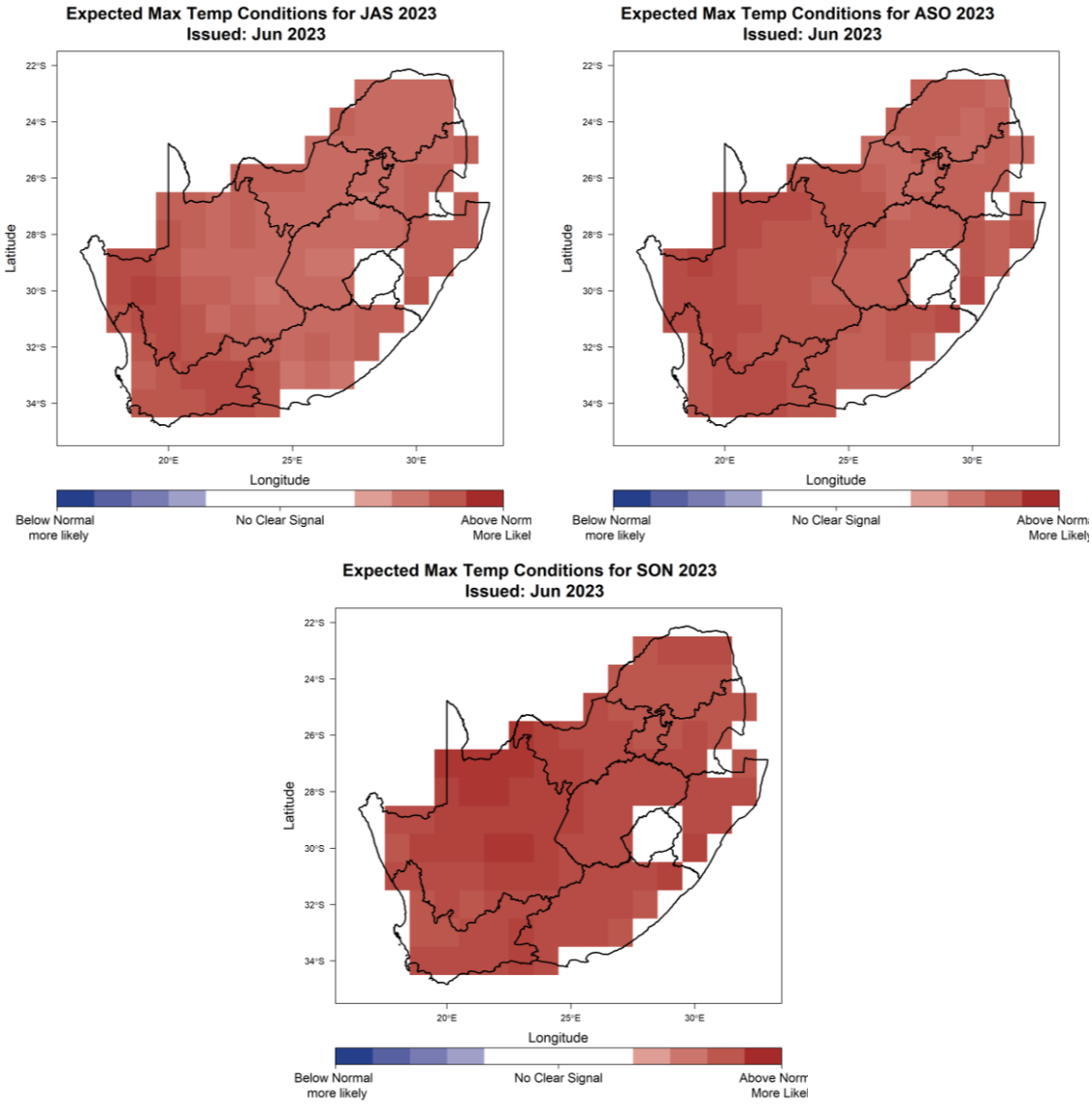

Figure 5: July-August-September 2023 (JAS; left), August-September-October 2023 (ASO; right), September-October-November 2023 (SON; bottom) seasonal maximum temperature prediction. Maps indicate the highest probability from three probabilistic categories, namely above-normal, near-normal and below-normal.

2.3. Climatological Seasonal Totals and Averages

The following maps indicate the rainfall and temperature (minimum and maximum temperature) climatology for the July-August-September, August-September-October and September-October-November seasons. The rainfall and temperature climates are representative of the average rainfall and temperature conditions over a long period of time for the relevant 3-month seasons presented here.

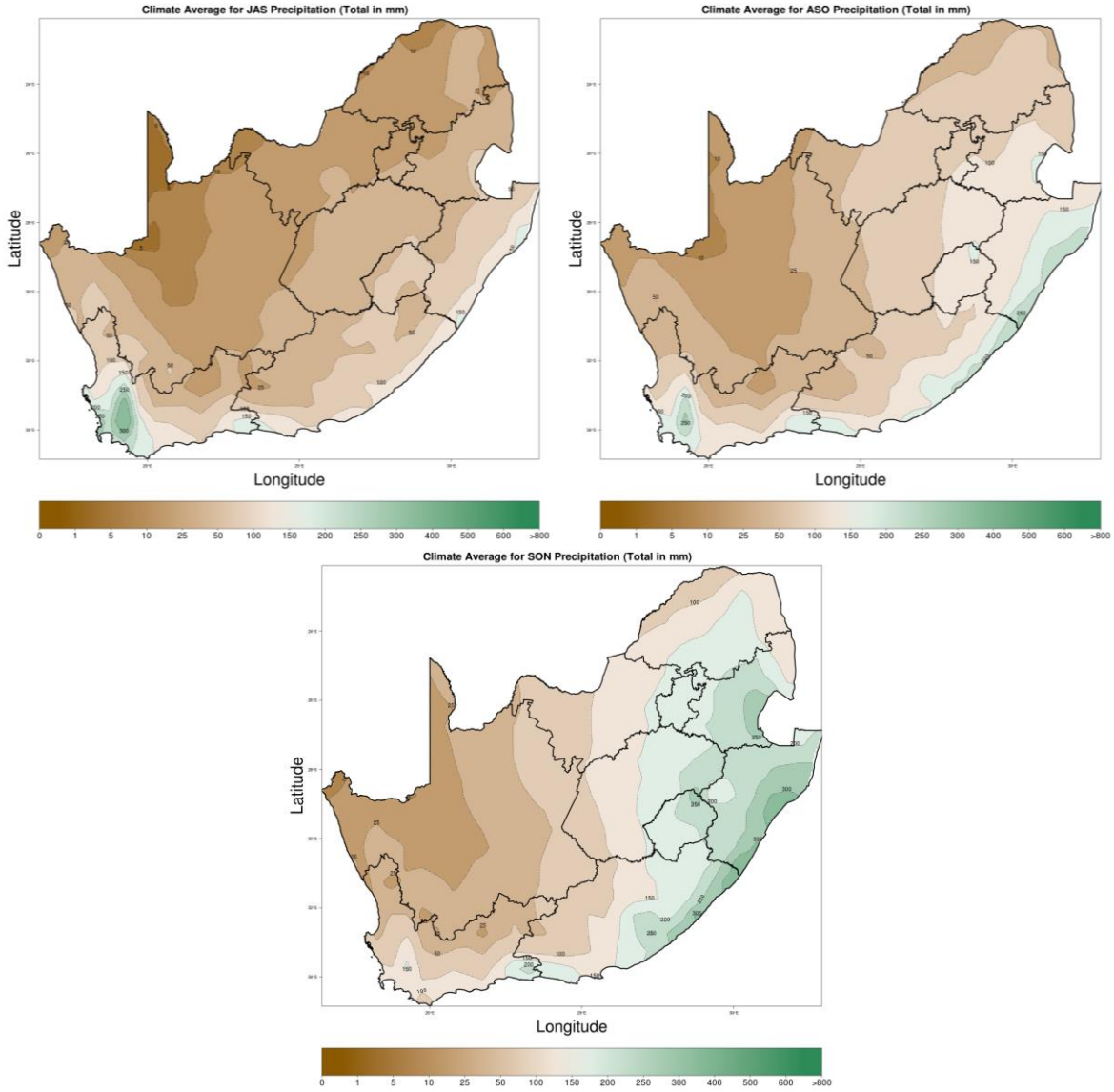

Figure 6: Climatological seasonal totals for precipitation during July-August-September (JAS; left), August-September-October (ASO; right) and September-October-November (SON; bottom).

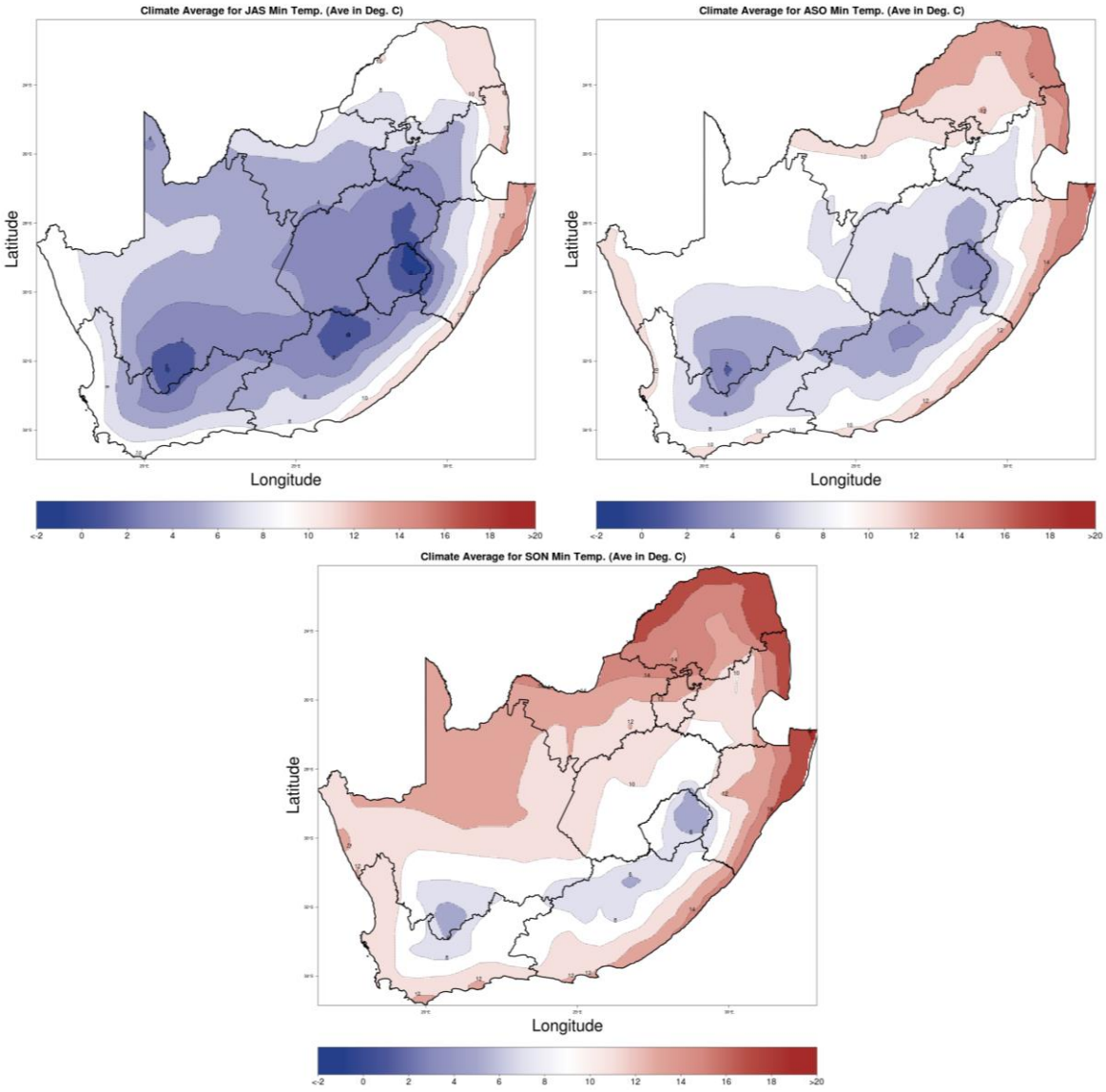

Figure 7: Climatological seasonal averages for minimum temperature during July-August-September (JAS; left), August-September-October (ASO; right) and September-October-November (SON; bottom).

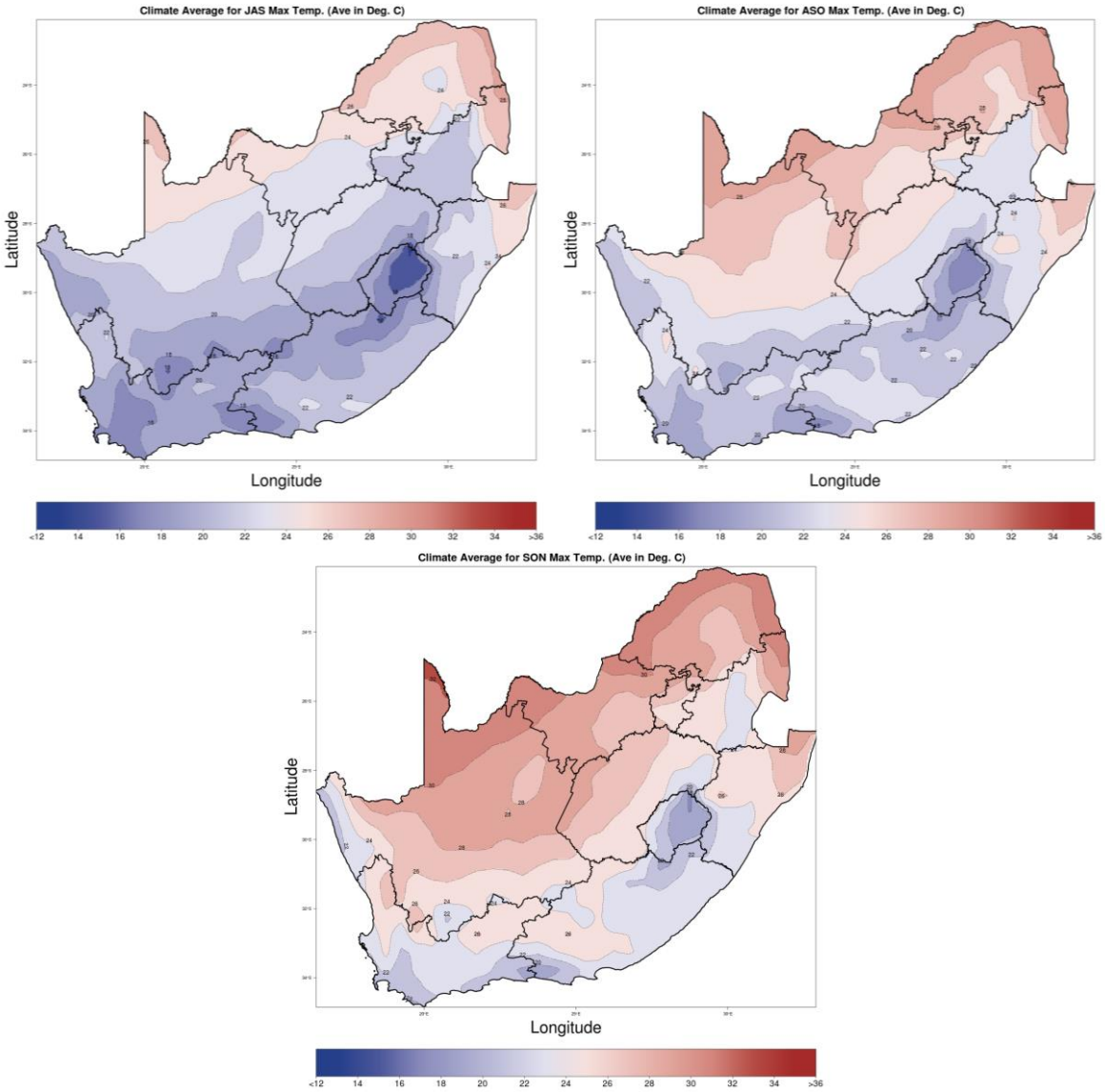

Figure 8: Climatological seasonal averages for maximum temperature during July-August-September (JAS; left), August-September-October (ASO; right) and September-October-November (SON; bottom).

3. Summary implications to various economic sector decision makers

Water and Energy

The expected above-normal rainfall across the country during winter and early-spring provides a good opportunity for the recharge of dams and other water reservoirs. Such conditions are likely to increase the risk of flooding in flood-prone areas. Furthermore, minimum and maximum temperatures are expected to be mostly above-normal countrywide, and will not likely increase the energy demand during the forecast period. Relevant decision-makers are encouraged to take note of these possible outcomes and communicate to affected businesses and communities.

Health

The projected minimum and maximum temperatures indicate a likelihood of relatively warmer conditions across the entire country during the forecasted period. The ultraviolet radiation (UV) levels during this period are expected to exceed the threshold, requiring the implementation of appropriate sun protection measures to minimize the potential risks associated with UV exposure. The predicted above-normal rainfall during winter and early-spring could elevate the risk of flash floods, especially in flood-prone regions and areas with inadequate drainage systems. These wet conditions may also contribute to waterborne infections and incidents of water-related injuries and accidents. It is recommended that the public take essential precautions and closely adhere to the guidelines and recommendations issued by local authorities.

Agriculture

Above-normal rainfall is expected for most parts of the country during winter and early-spring seasons. This above-normal rainfall forecast is particularly important for the winter rainfall region in the south and south-western parts of the country, which will likely have a positive impact on crop and livestock production. However, below-normal rainfall is predicted over the western and eastern parts of the country during mid-Spring, which is significant for these regions, particularly the eastern coastal areas. Therefore, the relevant decision-makers are encouraged to advise farmers in these regions to practice soil and water conservation, proper water harvesting and storage, establishing good drainage systems, and other appropriate farming practices.

This forecast is updated monthly, and users are advised to monitor the updated forecasts as there is a possibility for them to change, especially the longer lead-time forecasts. Moreover, farmers are advised to keep monitoring the weekly and monthly forecasts issued by the South African Weather Service (SAWS). Farmers are also advised to keep on monitoring advisories from the Department of Agriculture and make changes as required.

4. Contributing Institutions and Useful Links

All the forecasts presented here are a result of the probabilistic prediction based on the ensemble members from the coupled climate model from the South African Weather Service and two models from the NMME. Other useful links for seasonal forecasts are:

- http://www.weathersa.co.za/home/seasonal (Latest predictions from SAWS for the whole of SADC)
- https://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/ (ENSO predictions from various centres)
- https://iri.columbia.edu/our-expertise/climate/forecasts/seasonal-climate-forecasts/ (Copernicus Global forecasts)